

NIOSH SUMMARY ANNUAL CENTER REPORT

**THE UNIVERSITY OF MICHIGAN
Education and Research Center for
Occupational Health and
Safety Engineering**

July 1, 2010 – June 30, 2011

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Submitted by:

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The University of Michigan Center for Occupational Health and Safety Engineering (COHSE), a NIOSH Education and Research Center (ERC) (the 'Center'), has been continuously funded by NIOSH since its establishment in 1982. The mission of the Center is to serve the region, nation and world as a center of excellence for research and graduate education in Occupational Health and Safety. We maintain academic and research programs in the disciplines of Industrial Hygiene (IH), Occupational Health Nursing (OHN), Occupational Safety Engineering and Ergonomics (OSE), Occupational Epidemiology (OE), and Hazardous Substances Academic Training (HSAT). The Center's other programs include Continuing Education (CE), Outreach, Pilot Project Research Training (PPRT), and Targeted Research Training (TRT). We provide broad-based, interdisciplinary academic training in occupational health to ensure that graduates are qualified to pursue careers and assume leadership roles in the practice of occupational health and safety. This report summarizes the Center's accomplishments in the past year.

Faculty Promotions, Development and Awards

- Associate Prof. **Olivier Jolliet** was approved for promotion to Full Professor.
- Assistant Professor **John Meeker** was promoted to Associate Professor with tenure. In September, he assumed directorship of the PPRT program.
- Associate Professor **Eduardo Villamor** was promoted to Associate Professor with tenure.
- Assistant Professor **Toby Lewis**, who holds a joint appointment in Environmental Health Sciences and the School of Medicine, was approved for promotion to Associate Professor.
- **Timothy Dvorch**, former research scientist in Environmental Health Sciences has joined the faculty as Assistant Professor.
- Dr. **Sheryl Ulin** was named ERC Director of Continuing Education and Outreach, replacing Mr. **Randy Rabourn**, who retired.
- Professor **Alfred Franzblau** was appointed Associate Dean for Research at the School of Public Health.
- Professor **Thomas Robins** was appointed to the newly created position of Director of Global Public Health in the School of Public Health.
- Assistant Professor **Dana Dolinoy**, the UM SPH Searle Professor of Environmental Health Sciences, received the 2011 Norman Kretchmer Memorial Award in Nutrition and Development.
- Professor **Jerome Nriagu** has been appointed to the newly combined Community Based/Participatory Research Center in SPH.
- Several UM NIOSH ERC faculty play key roles in the new University of Michigan NIEHS P30 Core Center awarded in April of 2011, including Professor **Howard Hu** (PI and Center Director), Professor **Stuart Batterman** (Leader, Exposure Core), Assistant Professor **John Meeker** (Co-Leader, Exposure Core), Professor **Olivier Jolliet** (Co-Leader, Exposure Core), and Associate Professor **Marie O'Neill** (Member, Integrated Health Sciences Core).
- Professor **Howard Hu** is the recipient of the 2011 Award for Excellence by the American Public Health Association, to be received at the annual meeting in Washington DC in November.
- Professor **Jerry Keeler**, well-known and respected for his work on mercury cycling, passed away after a long battle with cancer.
- Assistant Professor **Richard Neitzel**, an industrial hygienist, joined the Environmental Health Sciences faculty in September 2011.

Student enrollment and graduation in the ERC academic programs

The following table shows the number of ERC-supported students enrolled and graduated during the 2010-2011 reporting year. Overall, the academic programs within the Center enrolled 100 students (54 Masters and 46 doctoral students) and graduated 36 students (27 Masters and 9 Doctoral students). Among the 36 graduates, 29 entered positions in occupational and environmental health organizations around the world; 2 of the Masters graduates entered Medical Schools; 1 of the Masters graduates is working in a non-OEH position, and 4 Masters students are currently seeking employment.

Enrollment					Graduates				
	MPH	MS	PhD	Total		MPH	MS	PhD	Total
IH	13	1	8	22	IH	5	0	1	6
HSAT	12	1	0	13	HSAT	3	0	0	3
OE	11	0	16	27	OE	8	0	2	10
OHN	0	8	2	10	OHN	0	3	0	3
OSE	0	8	20	28	OSE	0	8	6	14

Continuing Education Programs

During the reporting year, 875 individuals across all occupational health and safety disciplines attended continuing education programs sponsored by the Center, accounting for 3,608 person-days of training. One notable program was our NORA Symposium, "Protecting Clean-Up Workers and Emergency Responders: How Can We Prevent Long-Term Adverse Health Effects?" This program attracted 84 attendees and included speakers from Michigan OSHA and the National Institute for Occupational Safety and Health (NIOSH) who reviewed the responses to extraordinary events such as the 9/11/2011 World Trade Center disaster, the Gulf of Mexico Deepwater Horizon oil spill in 2010, and the Marshall, Michigan Enbridge pipeline oil spill in 2010. A large number of outreach activities were undertaken by UM Center faculty and staff, including curriculum and research assistance to other academic institutions, professional consultation, and publication of seminars on websites open to the public. We also provided technical expertise to expand a state-wide project that is providing ergonomic consultation and training to small businesses in Michigan.

Pilot Program Research Training

In the reporting year, the PPRT program received 8 proposals, of which 4 were selected for funding:

- Epigenetics and Mercury Exposure in the Michigan Dental Association (MDA) Cohort
- Microfabricated Passive Preconcentrator/Injector for Personal VOC Exposure Monitoring
- Antineoplastic Drug Exposure of Health Care Workers in an Ambulatory Oncology Setting
- Video-Based Direct Reading Exposure Assessment for Repetitive Motion

Accomplishments resulting from previously funded PPRT projects in the past year included over 10 papers and proceedings, 2 awarded grants, and several grants in preparation or submission phases.

Three examples of scholarly outputs are provided below:

- Park, S.K., Elmarsafawy, S., Mukherjee, B., Spiro, A., Vokonas, P.S., Nie, H., Weisskopf, M.G., Schwartz, J., Hu, H. Cumulative Lead Exposure and Age-related Hearing Loss: The VA Normative Aging Study, *Hearing Research* (2010), doi: 10.1016/j.heares.2010.07.004
- Wiggermann, N.E., and Keyserling, W.M. Effect of Flooring on Discomfort and Behavioral Responses to Prolonged Standing, Proceedings of the Human Factors and Ergonomics Society 54th Annual Meeting, San Francisco, September, 2010
- Young, JG; Sackllah, M; Armstrong, TJ. Force distribution at the hand/handle interface for grip and pull tasks. Proceedings of the Human Factors and Ergonomics Society 54th Annual Meeting. San Francisco, CA. September, 2010

Visiting Partners Program

The Visiting Partners Program (VPP) recruited a total of 6 visiting partners (VPs; 4 full-year and 2 half-year), achieving the program's goal. These working professionals came from Michigan, Illinois, and Puerto, and were mentored by a total of 12 UM faculty from the School of Public Health, School of Education, College of Engineering, Center for Research on Education and Teaching, and Center for Health Communication Research. Additional mentoring was provided by UM staff members, including research librarians, and 2 individuals from the private sector. The VPs and their projects are summarized below.

- **Sergio Caporali Filho**, Associate Professor at University of Puerto Rico – Medical Sciences Campus. He developed, implemented, and evaluated a bilingual online educational module on industrial ventilation covering the principles of general and dilution ventilation.
- **Jeff Gearhart**, Research Director at the Ecology Center, Ann Arbor, MI. He evaluated the use of Fourier Transform Infrared Spectroscopy (FTIR) to screen products for hazardous chemicals.

- **Stephen Mitchell**, Research Division Safety Chairman, Grievance Committeeman, Local Union Discussion Leader, and a UAW Local 974 Executive Board Member. His project is developing a tool to evaluate the extent of underreporting injuries and illnesses in the workplace, and to identify factors associated with this underreporting.
- **Norbert Schiller**, principal consultant and owner of an industrial hygiene consulting firm, and Adjunct Instructor at Madonna University. His project was to explore and develop a model curriculum for an undergraduate program leading to a degree in Environmental Health and Safety.
- **Pamela Ortner**, Education/Quality Outcomes Coordinator at Angela Hospice. Her project was to explore occupational and life cycle impacts of cremation, ground burials, home funerals, and green burials (without embalming fluids and non-biodegradable casket or liner).
- **Kinnus Paul**, Program Manager, Detroiters Working for Environmental Justice. His project was to use media technology to increase high school students' awareness of Occupational Health and Safety as a course of study and career path.

The final VPP on-campus retreat session was held at UM, during which all VPs presented posters and gave presentations attended by the ERC Directors, faculty mentors, research librarians, and UM students. A call for applications for the second year of the VPP was issued in early summer.

Student Awards and Accomplishments

- Ms. **Brittany Lewis** was awarded the AIHF Clayton Endowed Scholarship.
- Ms. **Mary Ellen Hicks** was awarded the AIHF Ralph G. Smith Scholarship.
- Mr. **Vivek Patel** received the Michigan Industrial Hygiene Society Award.
- Mr. **Sun Ku Kim** received the Warren Cook Award.
- Mr. **Bufford Ang** received the 3M Scholarship Industrial Hygiene Society Award.
- Mr. **Jonathan Bryant-Genevier** (presenter) and co-authors Mr. **Sun Kyu Kim**, Dr. **Hungwei Chang**, and Professor **Ted Zellers** won 2 awards at the 2011 American Industrial Hygiene Conference and Expo (AIHce) for the poster "Field Testing of a Micro Gas Chromatograph Prototype: Selective, Real-Time Analysis of Indoor-Air Concentrations of TCE at Low-ppb Levels": Real-time Detection Systems Committee Best Poster, and Engineering Committee Best Poster.
- Ms. **Thitiporn Sukaew** (presenter) and co-authors Dr. **Hungwei Chang**, Mr. **Gustavo Serrano**, and Prof. **Ted Zellers**' poster on "Multi-Stage Preconcentrator/Focuser Module Designed to Enable Trace Level Determinations of Trichloroethylene in Indoor Air with a Microfabricated Gas Chromatograph," was named Best Poster in the Sampling and Laboratory Analysis category at AIHce.
- Mr. **Gustavo Serrano** (presenter) and co-authors Dr. **Hungwei Chang**, Ms. **Lindsay Amos** and Dr. **Ted Zellers**' work on "Prototype Micro Gas Chromatograph for Rapid Determination of Explosive Marker Compounds" won first place as the Real-time Detection Systems Committee Best Poster at AIHce.
- Ms. **Josephine Foley** received a scholarship from the National Association of Hispanic Nurses. She was also recently elected as President of the Michigan Chapter of the National Hispanic Nurses Association.
- Ms. **Jacqueline Higuera** has been selected for a Graduate Nurse Internship at the United States Department of Labor Occupational Safety & Health Administration.

Development of Curricula, Courses, Teaching and Reference Materials

A new EHS course, **EHS 601-Foundations in Environmental Health Sciences**, was developed and is being delivered in fall, 2011. Course development and delivery involved Assoc. Prof. **John Meeker** and Professor **Al Franzblau**, among others. This 4-credit core course, taken by all ERC MPH students, uses both didactic lectures and case studies to integrate material from three previous courses on exposure assessment, toxicology, and occupational disease.

Other Major Developments and Progress

- The Target Research Training Program's competing renewal was funded for two years.
- Nursing faculty and ERC Director **Marjorie McCullagh** is the PI of a new NIH research grant testing the effectiveness of interventions to increase hearing protector use among farm operators.